Fig.1

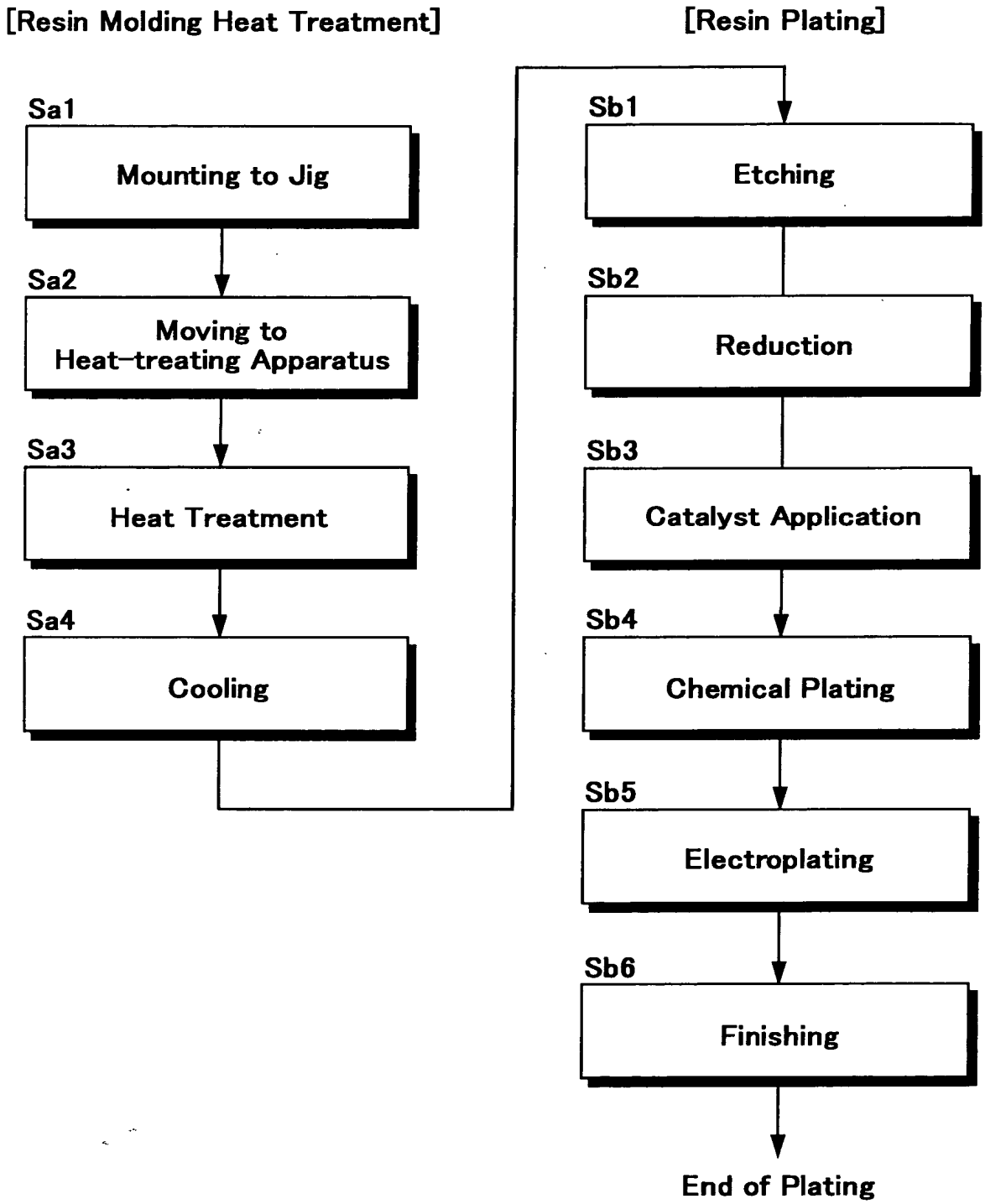
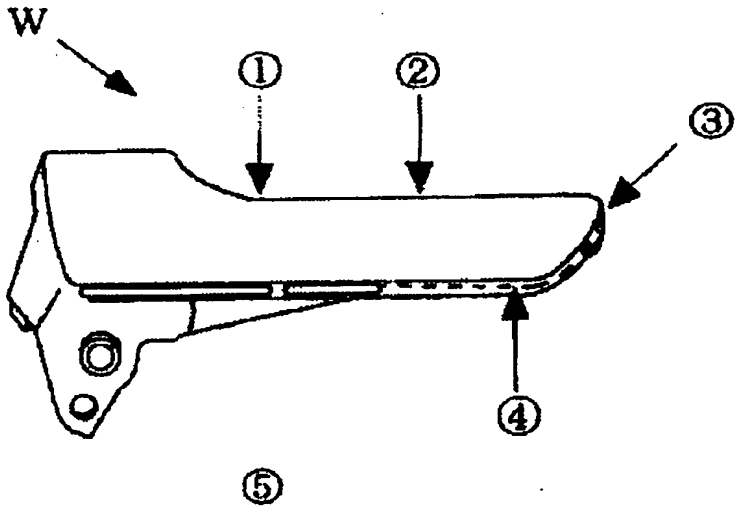


Fig.2

(a)



(b)

1st Measurement

	Temperature (° C)					
Treating Conditions	1	2	3	4	5	6
①			102.5	124	144.2	171
②			90.8	107	111.1	118.5
③			97.9	117.2	138.8	153.6
④			89.2	111.4	130.8	151
⑤(Indoor)			22.2	22.2	22.2	22.2

(c)

2nd Measurement

	Temperature (° C)					
Treating Conditions	1	2	3	4	5	6
①	42.3	51.3	85.5	134.1	143.7	168.6
②	64.5	80.6	99.1	106.3	111.8	130.2
③	50.4	60.9	83.1	119.9	128.4	153.2
④	70.7	86.2	105.3	116	129.7	159.1
⑤(Indoor)	22.3	22.4	22.7	22.8	22.5	22.4

Fig.3

Material Conditions	Plated Part	Sample No.	Number of Cycles of Hot-Cold Shock Test					
			10	20	50	100	150	200
Without heat treatment	A	1	O	O	O	×	—	—
		2	×	—	—	—	—	—
		3	×	—	—	—	—	—
		4	O	×	—	—	—	—
		5	O	O	×	—	—	—
	B	1	O	O	×	—	—	—
		2	O	O	×	—	—	—
		3	O	O	×	—	—	—
		4	O	O	O	O	×	—
		5	O	O	O	×	—	—
	C	1	O	×	—	—	—	—
		2	O	×	—	—	—	—
		3	O	O	×	—	—	—
		4	O	O	×	—	—	—
		5	O	×	—	—	—	—
Heat-treated	A	1	O	O	O	O	O	O
		2	O	O	O	O	O	O
		3	O	O	O	O	O	O
		4	O	O	O	O	O	O
		5	O	O	O	O	O	O
	B	1	O	O	O	O	O	O
		2	O	O	O	O	O	O
		3	O	O	O	O	O	O
		4	O	O	O	O	O	O
		5	O	O	O	O	O	O
	C	1	O	O	O	O	O	O
		2	O	O	O	O	O	O
		3	O	O	O	O	O	O
		4	O	O	O	O	O	O
		5	O	O	O	O	O	O

[Evaluation] O : free of blister × : blister

Air bottle type thermal shock tester

Test Conditions: 80℃/30min → -30℃/30min as one as one cycle, the appearance of product is checked after the end of a predetermined number of cycles.

Fig.4

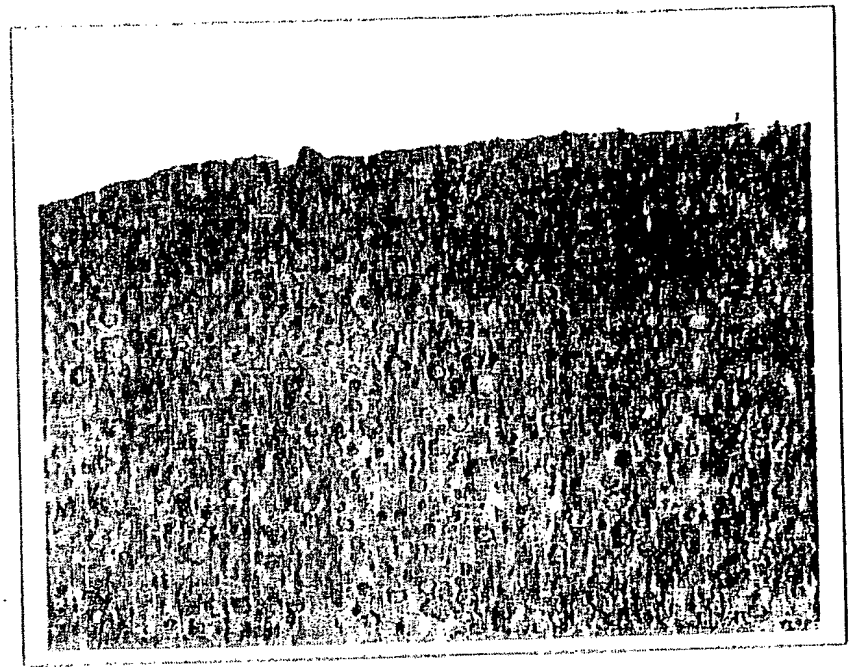


Fig.5

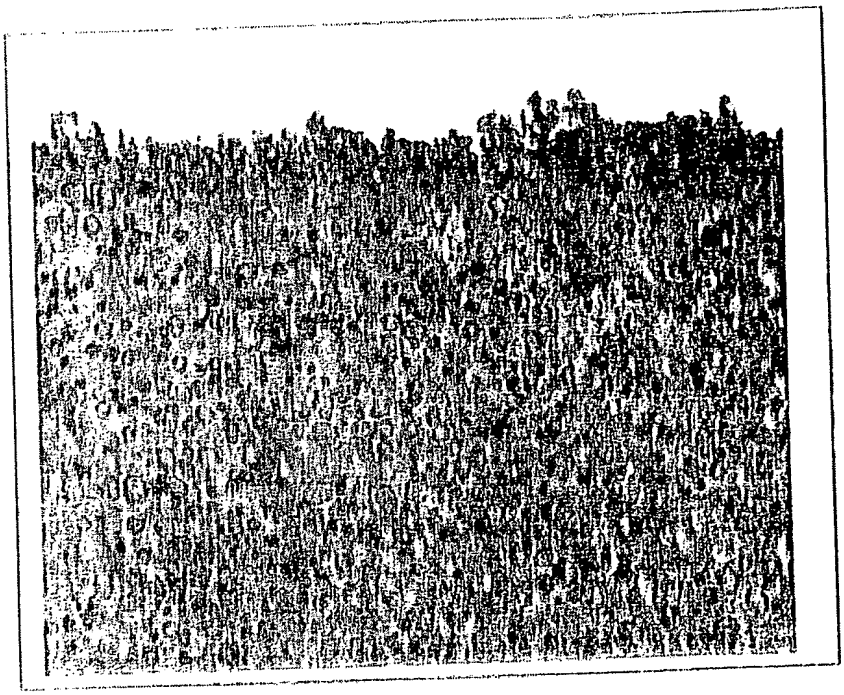


Fig.6

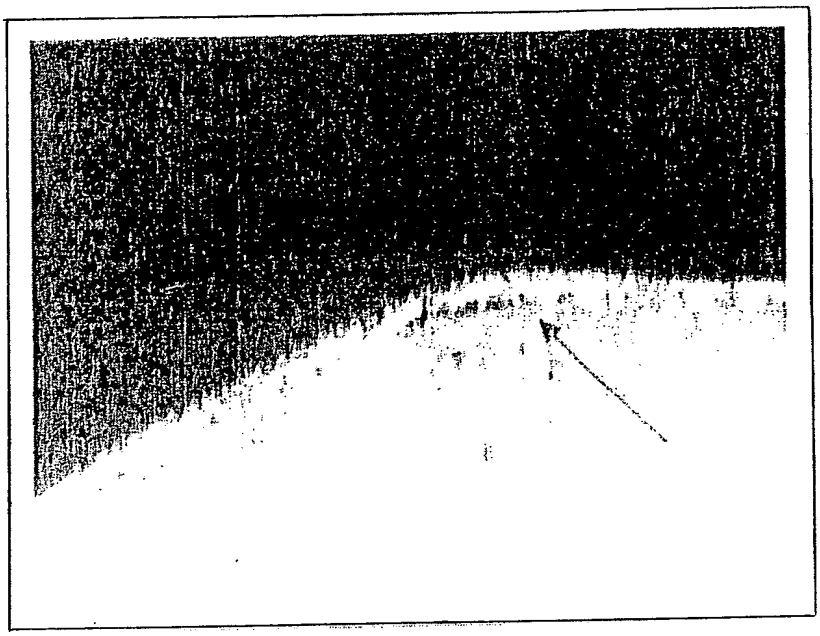


Fig.7

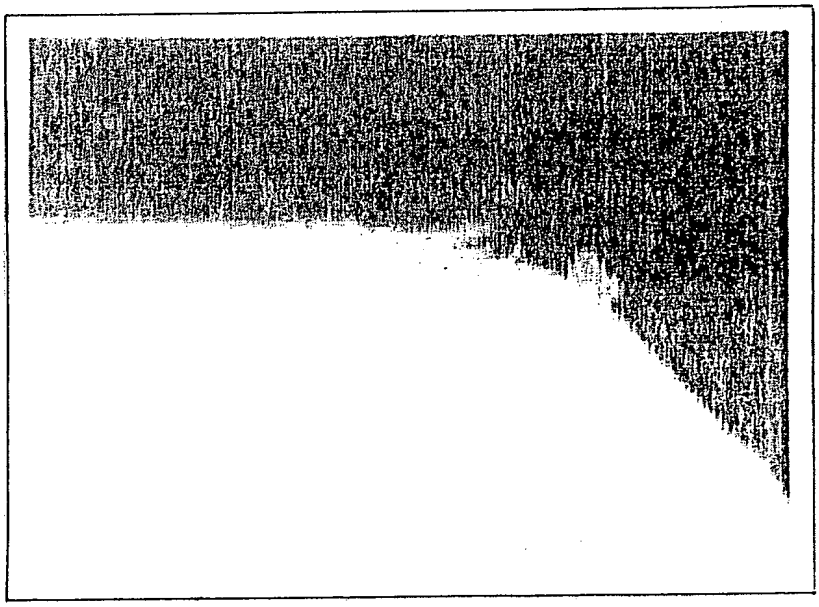


Fig8

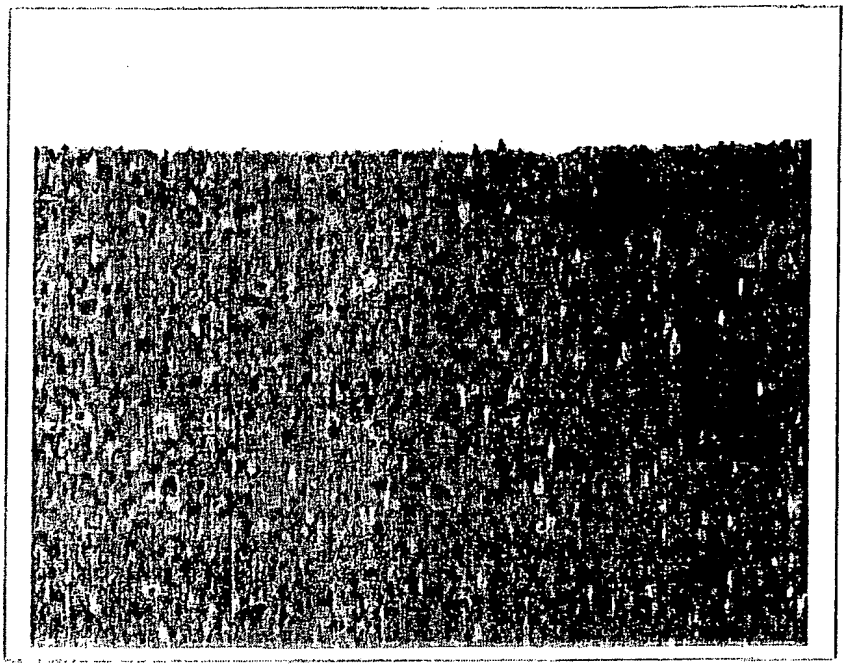


Fig.9

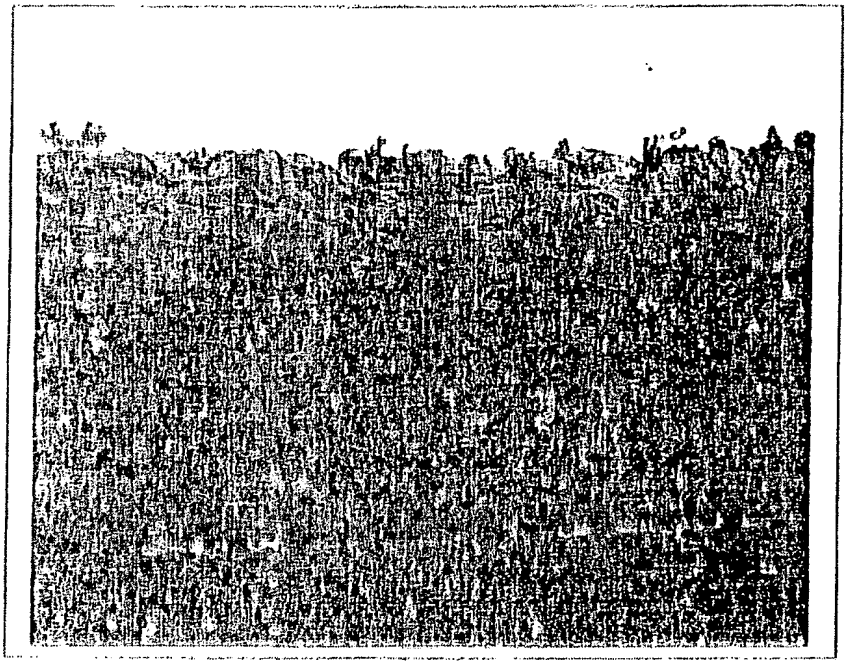


Fig.10